DOCUMENT RESUME

ED 299 032 PS 017 550

AUTHOR Sugar, Judith
TITLE Day Care Research: What Is the Treatment?
PUB DATE [87]
NOTE 11p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Day Care; Early Childhood Education; *Family Influence; *Individual Development; *Research Design; *Research Problems; *Systems Approach
IDENTIFIERS *Interdependence

ABSTRACT

The purposes of this paper are to consider how the prototypical research design of day care studies may unjustifiably emphasize day care as the effective factor or "treatment" in children's development, and to describe processes by which the family or some interaction between the family and day care may also affect preschoolers' development. The paper points out five alternative processes, in addition to the direct effect of day care, by which day care and the family may affect preschoolers. After an exploration of problems in the design of most day care studies, discussion focuses on: (1) day care as treatment; (2) the family as treatment; and (3) the combination of day care and family as treatment. The family may be the effective or variable in day care studies. Nonparental care, alternatively, may affect children indirectly, through its effects on parents. Day care could mediate the effects of the family on a child's development. Day care may have an effect on the child which, in turn, affects the parent-child relationship. Finally, families may affect their children in such a way as to influence the relationship between their children and day care. It is concluded that researchers may easily emphasize the direct effects of day care on the child, while overlooking other important sources of influence that may be independent or that may interact with day care. (RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED299032

Day Care Research:

What is the Treatment?

Judith Sugar

Colorado State University

Running head: DAY CARE RESEARCH

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Judith A. Sugar
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

PS 018250

I thank Glen A. Lawson, Graham F. Reed, and especially Marilyn T. Zivian and C. Richard Tracy for their helpful comments on earlier drafts of this paper.
Send correspondence to the author at the Department of Psychology, Colorado State University, Fort Collins, CO 80523.

Abstract

The typical research design of day care studies emphasizes the direct effect of day care on children's development. The family or some interaction between the family and day care are likely to be other sources of developmental influences on children experiencing nonparental care. The paper describes processes by which the family alone, or in conjunction with day care, may influence preschoolers' emotional, cognitive, and social development.

Day Care Research:
What is the Treatment?

The rapid growth in research on day care over the past 25 years is likely due to three factors: (a) the large numbers of preschool children who now spend many (if not most) of their waking hours under nonparental care, a condition brought about by the increased participation of women in the labor force; (b) a concern for the possible negative effects of daily separations of parents from their child when nonparental care is used. Psychoanalytic theory, as well as empirical studies of the effects of institutionalization (Bowlby, 1951) and extended hospitalization (Spitz, 1945), have emphasized the importance of early experience on children's development. Although nonparental care does not represent the same drastic conditions as institutionalization or hospitalization, daily separations of parents from their child may, nevertheless, adversely affect emotional and social development; and (c) an awareness of, and concern for, the development of disadvantaged children that gained momentum during the 1960s and led to the initiation of early intervention programs for preschoolers. More recently, this concern has broadened to encompass the general question of the effects of any day care setting on children's cognitive development.

Day care research has dealt extensively with the direct effects of the identified treatment--i.e., day care--on children's development. More recently, researchers have become sensitive to the influence of familial factors that may act alone, or in conjunction with day care, to affect children's development. Increasingly, day care researchers are realizing and addressing the important influences of familial characteristics on children's development.

The purposes of the present paper are to consider how the prototypical research design of day care studies may unjustifiably emphasize day care as the treatment, and to describe processes by which the family or some interaction between the family and day care may also affect preschoolers' development. Four basic types of child care arrangements are considered: (a) parental care, in which children are cared for in their own home by one or both of their parents; (b) sitter care, in which children are cared for in their own home by a caregiver employed by the parents; (c) family day care, in which children are cared for in someone else's home by a caregiver who is often a parent also caring for his or her own child or children; and center care, in which the setting is specifically designed for groups of children, and in which there are multiple caregivers. The term "day care" will be used to refer to any child care arrangement in which the caregiver is not one of the child's parents.

The Design of Day Care Studies

Most day care studies compare an experimental and a control group of children where the experimental group is composed of children already experiencing some form of day care (usually center care), and the control group is composed of children experiencing parental care. Children in the two groups are usually matched on some variables (for example, age, sex, and socioeconomic status) considered to be important to the behavior under study. These groups are then tested on some measure, or measures, of cognitive, emotional, or social development, or a combination of these. Any differences between the groups are explained in terms of the identified treatment, i.e., day care; similarities between the groups are interpreted as indicating no treatment effect.

The research design of such day care studies is an *ex post facto* design, basically a static group comparison with the additional feature of subject matching (Campbell & Stanley, 1966). In a static group comparison, the treatment effect is tested by comparing an experimental group that has already experienced the treatment with a control group that

has not. Because the investigator collects data only after the "experiment" is already in progress, he or she has no control over the assignment of subjects to treatment conditions.

To determine whether a treatment has an effect, it has to be established that the experimental and control groups will perform similarly on the dependent measure in the absence of the specified treatment. Otherwise, the experimental design lacks internal validity because we cannot know whether the specified treatment, or some other unspecified "treatment," is responsible for observed differences between groups. The most successful way of equating groups is to randomly assign subjects to experimental and control groups. The *ex post facto* design, however, does not use randomization. Instead, it attempts to approximate pre-experimental equivalence of groups by matching subjects on variables suspected, or known, to be related to the dependent variable(s). The hope is that matching subjects on these variables will minimize the number of alternative explanations for the findings.

Two major problems mitigate against the use of matching in experimental designs. One problem is that matching may produce a pseudo-effect as a result of differential regression in the experimental and control groups. That is to say, *ex post facto* designs provide no assurance that experimental and control groups are drawn from similar populations. Given that "scores on a fallible test tend to regress toward the mean of the particular population to which they belong" (Thorndike, 1942, p. 94), the experimental group may regress toward one mean, while the control group regresses toward a different mean.

The second problem is that "matching on background characteristics . . . is usually ineffective and misleading, particularly in those instances in which the persons in the 'experimental group' have sought out exposure to the [treatment]" (Campbell & Stanley, 1966, p. 12). In the case of day care, parents choose treatment (day care) or no treatment (parental care) for their children. Because selection of a treatment is a "lawful product of numerous antecedents" (Campbell & Stanley, 1966, p. 71), such subjects must always be undermatched by virtue of the choice made. Regardless of how many variables subjects are matched on, or how carefully the matching is done, the experimental and control groups are never completely matched because the experimental group has opted for treatment while the control group has not. Thus, while matching may eliminate some plausible explanations for any observed group differences, it cannot eliminate them all. Any factor influencing the choice of treatment can influence the behavior under study, irrespective of the specified treatment.

Two apparent solutions to the difficulties inherent in *ex post facto* day care studies have been recommended (Belsky & Steinberg, 1978). One solution aims to improve the match between experimental and control subjects by selecting children for the control group from among those on waiting lists to enter day care. A control group so constituted would be more likely than other types of control groups to match a day care group on a number of variables that may influence children's development (such as parents' motivation for using day care). However, even if control subjects from waiting lists and experimental subjects are equivalent on some variables, the fact that one group can afford, in some sense, to wait for treatment while the other cannot indicates that important differences may still exist between the groups.

Furthermore, although there has been concern about the absence of studies on the long-term effects of day care, and about the absence of studies on the more frequently used types of day care (i.e., family and sitter care), the solution of waiting-list controls still precludes studies of long-term effects and studies of family and sitter care. Subjects on waiting lists are good controls to the extent that they are similar to those undergoing

treatment. The longer they can wait for treatment, the less it would appear they are similar to the treatment group. Waiting-list controls who undergo treatment relatively soon after being placed on a waiting list are probably more similar to the subjects in the treatment group than those who wait longer. The best waiting-list controls, then, cannot be studied as subjects in the control group for very long. Moreover, because waiting lists are a formality more likely to be used in organized settings like day care centers, waiting-list controls for family or sitter care would be difficult, if not impossible, to find. Therefore, researchers who adopt the strategy of using waiting-list controls must perforce restrict themselves to investigating the short-term effects of center care.

Another solution to the problems of *ex post facto* designs is to randomly assign children to child care arrangements (Belsky & Steinberg, 1978). This solution effectively changes the *ex post facto* design into a posttest-only control group design (Campbell & Stanley, 1966). In the latter design, randomly assigning subjects to treatment and control groups ensures pre-experimental equivalence of groups with regard to the population mean, thus overcoming the internal validity problems of the design.

A posttest-only control group design has been used in one longitudinal study of day care (the Carolina Abecedarian Project; cf., Ramey & Bryant, 1987; Ramey, Farran, & Campbell, 1979; Ramey & Mills, 1977). In this project, preschoolers are randomly assigned to the experimental group, which has a day care program, or the control group, which does not. The families of both groups receive various services (e.g., medical and social work) and provisions (e.g., nutritional supplements and disposable diapers) in exchange for their participation in the project. Studying the effects of day care on these children is important because they are at high risk for developmental retardation. Nevertheless, these families represent only one segment of the population that seeks or uses day care. Other segments of the population may be less likely to participate in research using a posttest-only control group design.

What is the Treatment in Day Care Studies?

There are at least three alternatives for what might actually constitute the treatment in day care studies: (a) day care, (b) the family, and (c) some interaction between day care and the family.

Day Care as Treatment

The hypothesis tested by most day care research is that day care has a direct effect on children's development. Day care, then, is the identified treatment and should be described as such will all the concomitant details. Unfortunately, it is often simply mentioned under the description of subjects, as a characteristic of the child.

The idea that differences among day care arrangements may produce discrepancies in research findings is not new (see Anderson, Nagle, Roberts, & Smith, 1981; Macrae & Herbert-Jackson, 1975). Furthermore, although differences among, or within, types of day care have not generally been the focus of empirical research, a few studies have described important differences among day care centers (Biemiller, Avis, & Lindsay, 1979; Bradbard & Endsley, 1978a, 1978b; Ryan & Moffitt, 1974), and there is also evidence of large differences within family and sitter care (Keyserling, 1972).

Day care has been described as a "global, undifferentiated construct" (Anderson, 1980). The construct of day care could become more useful if it was more precisely described. Descriptions of treatments serve three functions: they provide a basis for determining what specific aspects of the treatment may be relevant to the behavior under

study; they help researchers determine the generalizability of research findings from a single study; and they clarify researchers' underlying theoretical notions. With respect to theoretical notions, the concept of day care as a treatment has very different implications depending on whether it refers to the daily separations of parents from their children, or to particular types of settings, caregivers, or programs.

The Family as Treatment

The "treatment" in day care studies may be the family. After all, some families choose day care and others choose parental care for their preschoolers. The individual differences among families that influence the type of child care they choose may also influence their child's development. One such difference among families is their attitudes towards child-rearing. For example, some mothers who opted for parental care have reported "anxiety about separation from their infants, distrust of the capabilities of nonmaternal caregivers and little interest in leaving the baby in the care of others in order to pursue a career" (Hock, 1980, p. 86). Furthermore, the infants of these mothers show more frequent and intense proximity-seeking behaviors in the Strange Situation (Ainsworth & Wittig, 1969) than the infants of mothers who opted for day care (Hock, 1980). These results suggest that differences in attachment between child care groups may be a consequence of child-rearing attitudes and practices of the parents in each group, rather than of child care types.

Another factor that influences both the choice of child care and children's development is family size. With increasing numbers of young children in a family, the cost of day care begins to outweigh the financial benefits of a mother working outside the home. Therefore, where economic considerations are important, families with two or more children are much less likely to choose day care than families with only one child. Indeed, one study found that more than 55% of children in full-time center care were only children, while just 16% of children in parental care were only children (Winett, Fuchs, Moffatt, & Nerviano, 1977).

If children experiencing day care are likely to be only children, then research on birth-order effects could be relevant to day care investigations. For example, "the infant's ordinal position may be one factor that could account for individual differences in maternal caretaking style and hence in infant attachment behaviors" (Fox, 1977, p. 1229). In addition, birth order and family size have been related to intellectual development (Zajonc & Markus, 1975). Evidence of the effects of birth order and family size on attachment and intelligence is especially important for day care studies because these are precisely the variables on which children experiencing different types of child care are often compared. Differences among families, such as child-rearing attitudes and family size, may influence both the choice of child care and their children's emotional, cognitive, and social development.

Day Care and the Family as Treatment

The remaining possibility for the treatment in day care studies is that both day care and the family act together in some fashion to affect the development of the child. Such a "two-factor" treatment could take one of several forms. Nonparental care may affect children indirectly, through its effects on parents (Steinberg & Green, 1979). Specifically, "if parents' child-rearing attitudes or behaviors are modified as a result of utilizing a substitute child care arrangement, children may be affected not solely because of their actual day care experiences, but also because of changes taking place at home" (Steinberg & Green, 1979, p. 2). In addition to child-rearing attitudes and behaviors, areas in which child care arrangements could affect parents include "family economics, . . . the well-being

of mothers and fathers, and . . . a family's ability and willingness to function as a family" (Steinberg & Green, 1979, p. 7).

The effects of day care on parents appear to depend upon the type of care. Interviews with parents who were using sitter, family, or center care revealed that

> parents using center day care were most likely to feel that they had learned more about child-rearing as a result of using day care . . . that using day care had improved their relationship with their child . . . that day care had helped them to enjoy parenting more . . . and that using day care had made them feel less harried. (Steinberg & Green, p. 6)

Any effects of day care on parents' interactions with their children may well influence their children's development. Thus, in evaluating the effects of day care on development, we must pay attention to the broader context in which alternative child care occurs. The development of children experiencing different types of child care may be mediated by parents rather than directly influenced by the child care arrangement.

If the treatment is both day care and the family, another way it could manifest itself would be if day care mediates the effects of the family on a child's development. Accordingly, parents choose child care that is consistent with their attitudes and feelings about how children develop. Thus, day care may have an effect on the child's development but the effect may be determined, at least in part, by the child's family. For example, one mother who was surveyed for a study of day care needs and services stated:

> My little boy, now two years, has been in day care homes [family day care] since six weeks. . . . The woman he is with now has no formal educational qualifications but she is a very warm, friendly, motherly type. My child gets lots of attention and loving. . . . To me, this warm, loving care is more important than formal education. When he gets older I will have to think about a day care school where he will get more intellectual stimulation. (Keyserling, 1972, p. 184)

Implicit in this statement are some very specific ideas about children's needs in relation to their development. The mother quoted above seems to think that a secure emotional environment should be the primary consideration for very young children, while intellectual stimulation becomes important only later in development. These notions of child development likely serve to guide the mother's own child-rearing practices in addition to her selection of child care which may, in turn, affect her child's development.

The two remaining forms of the two-factor treatment, which assume that day care and the family together constitute the treatment, are interactive. One is that day care has an effect on the child which, in turn, affects the parent-child relationship. Steinberg and Green's (1979) results may be better accounted for by this process than by the one they offered (viz., day care exerts its influence through the parent). For example, through their experience in day care centers, children may learn to be more independent, thereby lessening their demands on parents. Being less harried by the day-to-day caretaking involved in child-rearing, parents may then have more time and energy to enjoy their children. Ultimately, day care may favorably alter the parent-child relationship so that the child's development is also enhanced by his or her parents. If we can presume that the research on maternal employment is also relevant to research on day care, then the finding that children are more independent and self-sufficient when their mothers are employed outside the home (see Rubenstein, 1985) would be consistent with the hypothesis presented here.

The other interactive process is that families affect their children in such a way as to influence the relationship between their children and day care. Children, influenced in development by their families, affect their day care environment which, in turn, affects the child. The notion of reciprocity in the child-caregiver relationship is well documented (cf., Bell, 1971; Lewis & Kreitzberg, 1979; Lewis & Rosenblum, 1975).

In reviewing the research design of the prototypical day care study, the foregoing analysis has shown how we can easily emphasize the direct effects of day care on the child, while overlooking other important sources of influence that may be independent or that may interact with day care. In addition to the direct effect of day care, five other plausible processes by which day care and the family may affect preschoolers have been presented. Of course, for any given behavior or situation, one or more of these processes may be at work. Keeping all six in mind may help us gain new insights into preschoolers' development as it reminds us that day care, child, and family act as an interdependent system that has properties of its own.

References

Ainsworth, M. D. S., & Wittig, B. A. (1969). Attachment and exploratory behavior in one-year-olds in a strange situation. In B. M. Foss (Ed.), *Determinants of infant behavior* (Vol. 4, pp. 113-136). London: Methuen.

Anderson, C. W. (1980). Attachment in daily separations: Reconceptualizing day care and maternal employment issues. *Child Development, 51*, 242-245.

Anderson, C. W., Nagle, R. J., Roberts, W. A., & Smith, J. W. (1981). Attachment to substitute caregivers as a function of center quality and caregiver involvement. *Child Development, 52*, 53-61.

Bell, R. Q. (1971). Stimulus control of parent or caretaker behavior by offspring. *Developmental Psychology, 4*, 63-72.

Belsky, J., & Steinberg, L. (1978). Effects of day care: A critical review. *Child Development, 49*, 929-949.

Biemiller, A., Avis, C., & Lindsay, A. (1979). Application of Watt's Human Interaction Scale to the study of competence-supporting aspects of day care environments. *Canadian Journal of Behavioural Science, 11*, 356-360.

Bowlby, J. (1951). *Maternal care and mental health.* Geneva: World Health Organization.

Bradbard, M. R., & Endsley, R. C. (1978a). Developing a parent guide to quality day care centers. *Child Care Quarterly, 7*, 279-294.

Bradbard, M. R., & Endsley, R. C. (1978b). Improving inexperienced raters' evaluations of day care quality through the use of a guide. *Child Care Quarterly, 7*, 295-301.

Campbell, D. T., & Stanley, J. C. (1966). *Experimental and quasi-experimental designs for research.* Chicago: Rand McNally.

Farran, D. C., & Ramey, C. T. (1977). Infant day care and attachment behaviors toward mothers and teachers. *Child Development, 48*, 1112-1116.

Fox, N. (1977). Attachment of kibbutz infants to mother and metapelet. *Child Development, 48*, 1228-1239.

Hock, E. (1980). Working and nonworking mothers and their infants: A comparative study of maternal caregiving characteristics and infant social behavior. *Merrill-Palmer Quarterly, 26*, 79-101.

Keyserling, M. D. (1972). *Windows on day care.* New York: National Council of Jewish Women.

Lewis, M., & Kreitzberg, V. S. (1979). Effects of birth order and spacing on mother-infant interactions. *Developmental Psychology, 15*, 617-625.

Lewis, M., & Rosenblum, L. A. (Eds.). (1974). The effect of the infant on its caregiver. New York: Wiley.

Macrae, J. W., & Herbert-Jackson, E. (1976). Are behavioral effects of infant day care program specific? *Developmental Psychology, 12*, 269-270.

Ramey, C. T., & Bryant, D. M. (1987, April). *Mother-child interactions and cognitive competence: Variations among disadvantaged families.* Paper presented at the meeting of the Society for Research in Child Development, Baltimore, MD.

Ramey, C. T., Farran, D. C., & Campbell, F. A. (1979). Predicting IQ from mother-infant interactions. *Child Development, 50*, 804-814.

Ramey, C. T., & Mills, P. J. (1977). Social and intellectual consequences of day care for high-risk infants. In R. A. Webb (Ed.), *Social development in childhood: Day-care programs and research* (pp. 79-110). Baltimore: Johns Hopkins University Press.

Rubenstein, J. L. (1985). The effects of maternal employment on young children . In F. J. Morrison, C. Lord, & D. P. Keating (Eds.), *Applied developmental psychology* (Vol. 2, pp. 99-128). New York: Academic Press.

Ryan, T. J., & Moffitt, A. R. (1974). Evaluation of preschool programs. *The Canadian Psychologist, 15*, 205-219.

Spitz, R. (1945). Hospitalism: An inquiry into the genesis of psychiatric conditions in early childhood. *Psychoanalytic Study of the Child, 1*, 53-74.

Steinberg, L., & Green, C. (1979, March). *How parents may mediate the effect of day care*. Paper presented at the meeting of the Society for Research in Child Development, San Francisco.

Thorndike, R. L. (1942). Regression fallacies in the matched groups experiment. *Psychometrika, 7*, 85-102.

Winett, R. A., Fuchs, W. L., Moffatt, S. A., & Nerviano, V. J. (1977). A cross-sectional study of children and their families in different child care environments: Some data and conclusions. *Journal of Community Psychology, 5*, 149-159.

Zajonc, R. B., & Markus, G. B. (1975). Birth order and intellectual development. *Psychological Review, 82*, 74-88.